ROGERS BOOSTER

MAY–JUNE 1962

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May 1962 marks the tenth year that we have been publishing the Rogers Booster. One of the birthday presents that we have given ourselves is a chance to sit down and think about the purposes of the Rogers Booster—and to pass our thoughts along to you here.

First of all: Just as there have been, in these past ten years, many changes and huge technical steps forward in the field of electronics, so there have been changes in the role of the radio, TV, and hi-fi technician.

One of the changes that our readers are going to notice will arise from the fact that Rogers has entered on a new no-premium policy, basing this new policy on the firm belief that the days of the premium-conscious dealer are numbered.

We believe that the Rogers Booster is a constant and continuing premium, available only to dealers and technicians doing business with Rogers. And this continuing premium itself more than offsets the disappointments of those we sometimes encounter, expressed by those who query: "What? No premiums?" To them we can only say: "There are premiums *and* premiums, gentlemen. We think the Rogers Booster is the *best* kind."

We believe that only the technician who becomes a businessman, capable of becoming a contributing member of the community in which he operates, can survive in the competitive hurly-burly of today's business world.

We believe that technicians who do not work multiple promotions through business associates are doomed to disaster, through their own lack of business imagination.

Firmly believing these things, the Rogers Booster is embarking on a policy of helping its regular readers to survive in the war of competition.

How? Our plan is very simple:

Beginning with this issue, and with all succeeding issues, we intend to demonstrate methods in which you, our readers, can achieve the objectives we have outlined, and become businessmen—and assets to your community.

We're not suggesting that the changing business world lessens the need for the technician to have a firm grasp of the purely technical side of his profession. Therefore the Rogers Booster, as always, will contain a hard core of articles devoted to sound, technical advice. BUT technical know-how without business know-how is like food without salt. So we are setting out, from this issue forward, to make sure that there is plenty of salt in the menu we present to our readers.

In taking this step, we will be relying not only on our own years of experience in the electronics business. We will be calling on YOU for your help, your suggestions, your advice.

And we must all start off with the realization that competition in our field is keen, and getting continually keener. But nobody should fear competition; he should only prepare himself to meet it boldly. And a healthy interchange of opinions—which we propose to present in the Rogers Booster—makes for a healthy over-all industry.

Counterman

short order cook or chef ?

Everybody thinks he knows what the counterman in an electronic supply store does. He's just like a clerk in a drug store. The customer comes to him off the street and asks for what he wants; the counterman gets it, makes out the bill of sale, and collects the customer's cash.

But after talking to Val Galka, dealer sales manager of Electro Sonic Supply Co., Toronto's largest wholesaler, one realizes what a tiny part of the entire counterman picture such a simple idea presents. For, in reality, there are countermen *and* countermen: the good ones, who might be compared to the best chefs with years of experience, study, and effort who have become masters of their chosen field; and the bad ones, who can be likened to the short-order cooks who can fry a hamburger, but who would turn pale at the idea of preparing a lobster thermidor.

Mr. Galka's firm is only interested in the best chef-type of counterman, who is a true asset to business. "You've got to like our business to get into it," he says, "and so we find that most of our countermen started as kids of about twelve, tinkering with a radio or something else in the electronics field." So "job interest" is one principle that motivates the good counterman; but job interest alone isn't enough—it has to be backed by sound technical knowledge, gotten in a recognized school—the Radio College of Canada or Ryerson Institute, for example—or acquired by working and experimenting with electronics on his own.

The present senior chef of Electro Sonic's counter is Maurice Fong, who was recently promoted to the position of countermanager. At 28—though he still could pass for a teenager—Maurice has been professionally engaged in electronics for eight years, the last six of them at Electro Sonic.

He picked up his interest in electronics early, from magazines, and decided that this was the field to which he would devote his life. With the determination already developed, he attended Radio Electronic Television Schools of Toronto for his formal training.

Now Maurice Fong finds himself in charge of a staff of seven countermen—though in busy seasons the number rises to ten—and dealing with a stock which, at a minimum estimate, runs to 500,000 separate items. The stock crams three storeys and the basement of Electro Sonic's building. It is constantly growing; there is a constant need to find new storage space.

What does the counter manager, responsible for this vast storehouse, expect of his employees? "When I talk to a prospective counterman, I'm looking for several things," says Maurice. "I want some one who has a knowledge of both theory and of parts. I want some one with the ability to talk to people. Naturally, too, I'm insistent on neatness, on clean-cut looks. For a good counterman is not just an order-filler—he's a salesman. If he can suggest to a customer a better way of solving his problem, he's bound to increase our sales, and to bring that customer back to our counter again.

continued over

"We find here that we like to know the fellow we're dealing with personally, not just as a customer. Then, his problems become our problems. A lot of servicemen are regular customers here, coming to us as often as six times a day. And the countermen have their own individual customers, who come to depend on one person to handle their needs and discuss their problems.

"And, although we're a wholesale house," he added, "we're interested in supplying to students who are just making a start in electronics. Everybody has to start somewhere, and the student of today is the dealer or serviceman of tomorrow."

Salesman, trouble-shooter, advisor—plainly if the counterman is going to do his job well, it will involve a great deal of effort. In six months, Maurice Fong estimates, a conscientious counterman can familiarize himself with the huge stock at Electro Sonic, so that he is not dependent too much on catalogues. But, on his own time, he also must keep up to date with advances within the electronics field, with new products coming on the market. From experience, Maurice knows this means reading and studying, and "tinkering around."

Above all, the counterman must know his parts, both on the practical and the theoretical sides. "He has to be able to tell whether a part can be used as the customer wants to use it. For example, we have servicemen who get ideas from American magazines, then come in and say: 'I want to build this. Can you supply the parts?' We have to check whether we can supply the main item — generally the transformer — and whether we can make it work as he wants it to. If we can, we give the go-ahead."

Again, he explained, many servicemen cannot wire anything except according to the original specifications. If the exact replacement isn't available, it's up to the counterman to demonstrate how a recommended substitute will work. (Conversely, if another component will *not* work satisfactorily as a replacement, that fact has to be noted in the company catalogue for future reference.)

Many customers, he explained, arrive at the counter not really knowing what they want. Then the counterman must be able to "clear up their vision"—Maurice's polite way of saying that customers who ask for a jack when they want a plug have to be straightened out.

As far as choice of manufacturer is concerned, the counter manager said that about fifty per cent of customers specify whose products they want. With the fifty per cent who rely on the counterman, the policy is to suggest whichever manufacturer's product will do the job best.

In the matter of manufacturers, Maurice Fong said, Electro Sonic relies on major suppliers. Furthermore, they recommend that dealers rotate the stock they buy. By doing so, they get full mileage from the manufacturers' warranties.

Taken all in all, Maurice Fong looks on his customers with a kindly eye; and he's very conscious of the onus on him and his employees to serve not only as counterman, but as advisors and public relations experts. If he has one main beef against the people who show up at his counter, it's that they won't learn part numbers.

Stock familiarity can take six months

"They'll come in with a complete description—say, of a four-by-seven by two chassis, and they'll know the price of what they want. Wouldn't you think that instead of remembering all that they could just remember—or write down—a part number, and save us a lot of trouble?"

But as he headed back to help out with the crowd of customers waiting at his counter—most of them probably without a part number to bless themselves with—Maurice Fong was still smiling. After all, he's in a service business, too!

TECHNICAL SECTION

SERVICING GRS BAND TRANSCEIVERS

(First of two parts)

The opening of the General Radio Service band in Canada also opens up some new opportunities for the Canadian service technician. The Canadian technician also has an advantage over his U.S. counterpart in that, at the present time at least, he does not require any special license. In the United States the technician must have an FCC First or Second Class Radio telephone license before he can do any work on the transmitter section.

The technician's first encounter in this field is likely to be the small transistor transceivers that are readily brought into his shop and so we will consider this type first.

EQUIPMENT REQUIRED

Most of the necessary instruments will already be on hand but we will enumerate them anyway. They are: (a) A good, well-shielded standard signal generator with a microvolt attenuator and having a range of from 100 kc to 30 mc. (b) a heterodyne frequency meter of good accuracy. (c) A field-strength meter. (d) Some unit for checking GRS crystals is desirable. (e) An oscilloscope in which direct connection may be made to the vertical deflection plates. (f) A 20,000 ohms-per-volt voltmeter having needle prods as well as standard. (g) The usual collection of hand tools used in servicing small units including watchmaker's screwdrivers and tweezers.

PROCEDURE

The experienced technician will only need his attention drawn to things specifically associated with this equipment. He will, of course, question the customer on the nature of the trouble and make an immediate check for loose connections, dead or improperly inserted batteries. Each manufacturer's product will have an enclosure that opens differently but anyone with experience on portable or car receivers will spot the combination right away.

With the case open, what does one look for? We must remember that these are portable units and have probably been dragged around in all sorts of weather and subjected to careless use. We should look for components that are broken loose, broken leads, cracked printed circuit boards and gook from dead batteries. If you have a pair of bellows available, blow out any dust and dirt that may be present. (You may even clear the fault this way.)

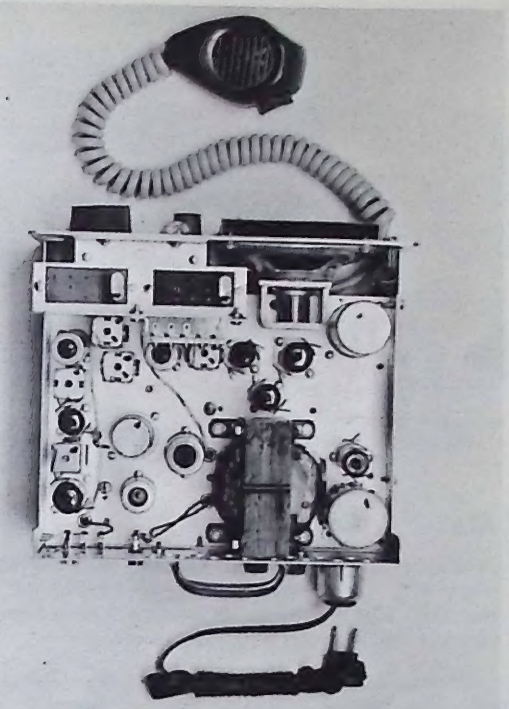


Figure 1—Typical GRS set with cover removed

If there are no visible defects, the next step is to take out the chassis which will usually consist of the printed circuit board itself. Here is where great care is necessary because they can be broken very easily.

Many of your customers will be of the heavy-handed type so watch for mechanical failure in the set. For example, push-to-talk switches fail very soon if the operator is heavy-handed. Perhaps only the shaft will be bent and this can be straightened and the owner advised to take it easy.

The same heavy-handed customer may think that the volume control can be advanced indefinitely and so you may find it forced past its limit

continued over

of rotation. This same type is inclined to leave old batteries in the set so that they ooze onto the foil of the printed circuit board. If not too seriously damaged, the board can be cleaned with radio solvent on a cotton swab and then solder flowed over the damaged foil.

Because of the extremes of temperature to which these sets are subjected, dried-out electrolytics are commonly encountered.

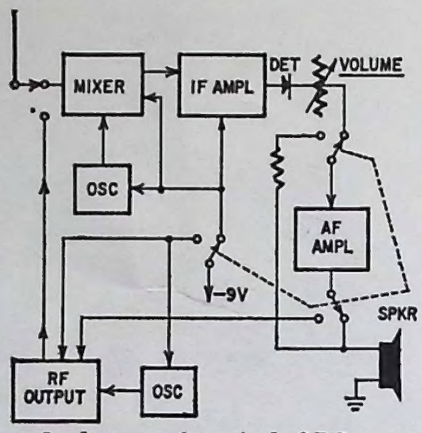


Figure 2—layout of typical GRS transceiver

ALIGNING THE RECEIVER

A block diagram of a typical unit is shown in Figure 2. Before using a signal generator, remember that the signal input to any transistor receiver should not exceed 500 microvolts.

If you have a crystal checker, another approach may be used. Put the cyrstal belonging to the transmitter section into the checker and place the checker near the transceiver so that the signal can be heard. As alignment brings up the set sensitivity, move the checker further away.

You must be very careful not to align to the image frequency. In this connection, it will help greatly if another set that is known to be good is also available. You can then tune the two sets to the same channel and see if you are receiving the same station at the same time. Still greater care must be taken in the case of multiple-conversion superhets because it is possible to tune the second mixer to the image of the first mixer's i.f., or vice versa. The first time you encounter this situation you may lose some weight and gain some hot vocabularly; but, as in all things, familiarity will breed contempt.

Before aligning the i-f stages, put the local oscillator out of commission by shorting its coil or removing its crystal. The d-c probe of the VTVM should connect to the emitter of the 1st i-f transistor. The i-f transformers should then be tuned for minimum voltage across the emitter resistor to the common battery return line. This method gives the most accurate output indication.

Where an i-f transformer must be replaced and the replacement is not exactly the original type, examine all the other i.f's to determine the proper method of connection. If trouble is then experienced, such as oscillating or motorboating, you may have an improper impedance match with the preceding transistor. In a case like this, the i-f stage will have to be neutralized. This is done by removing the existing neutralizing capacitor (if one is used) and replacing it with one of slightly smaller value. The new capacitor is then shunted with two lengths of insulated wire to form a gimmick. A sufficient length of the gimmick wire is twisted together to stop oscillation. To be sure that the set will not break into oscillation later, use a battery voltage that is slightly higher than normal. If you align with a subnormal battery, the set may break into oscillation later when fresh batteries are installed.

Actually, the alignment of these receivers follows standard procedure and only the foregoing precautions need be drawn to the attention of the technician.

TYPICAL RECEIVER FAULTS

Under this heading we are considering that the transmitter section is operating satisfactorily but the receiver is dead. The following procedure should be followed: (1) Check battery supply to r-f and i-f sections. Check decoupling resistors and replace any defective components. (2) Inspect bypass capacitors and replace if necessary. Check diode detector with ohmmeter and replace if front-to-back ratio is less than 10:1. (3) Check i-f transformers with an ohmmeter and replace defective units. (4) Inspect the push-talk switch. A weak spring may allow the switch to remain in the transmit position.

Transmitter OK, noise heard in speaker but no reception: The local oscillator is probably peaked incorrectly. Retune.

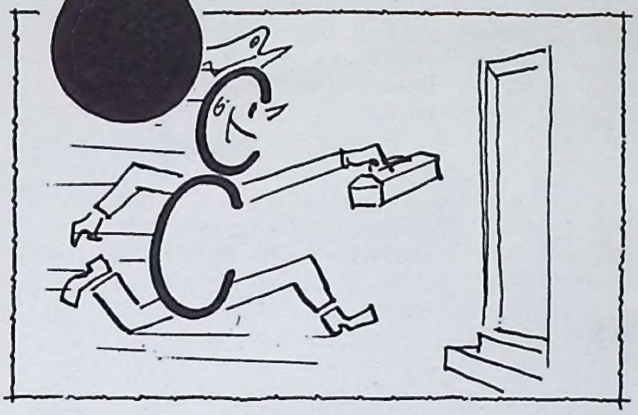
Transmitter OK but receiver sensitivity is low: (1) Check for weak battery. (2) Check for proper peaking of receiver antenna input coil. (3) Check for proper peaking of i-f transformers.

Set Completely dead: (1) Check battery voltage under load. Also check for polarity since operators love to put them in backwards. (2) Check for circuit breaks and repair. (3) Check volume control for damage by over-rotation.

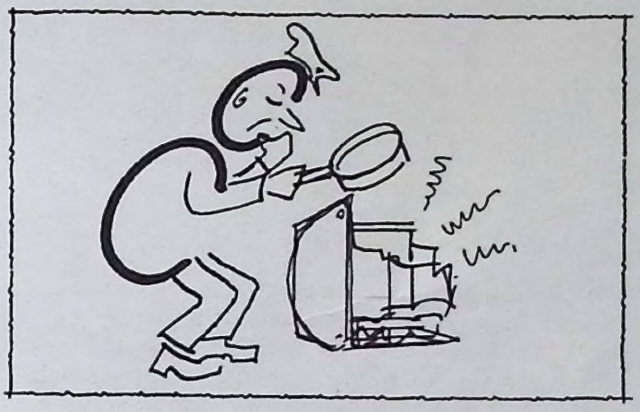
In our next issue we will consider the transmitter tuning procedure and some typical faults.

Cathode Charlie

saves the day (and makes it pay)

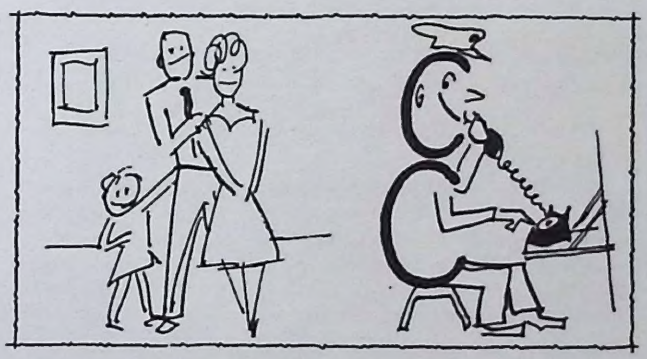


■ Charlie, come quick! The TV's gone all funny again! The kids are screaming their heads off already—and if you don't get here right away I'll go CRAZY!

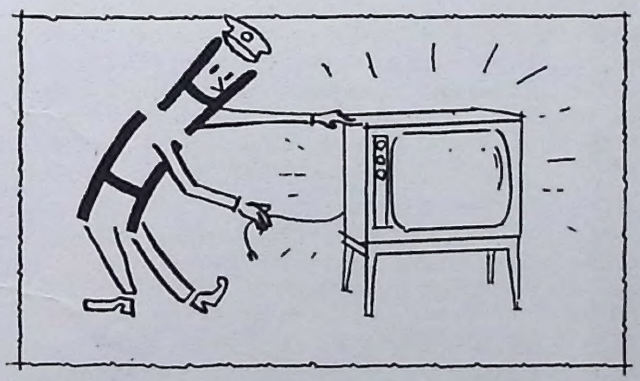


■ This looks like a very serious case, Mrs. Abernathy. Can't handle it here. I'm afraid I'll have to take the chassis back to the shop for an operation.

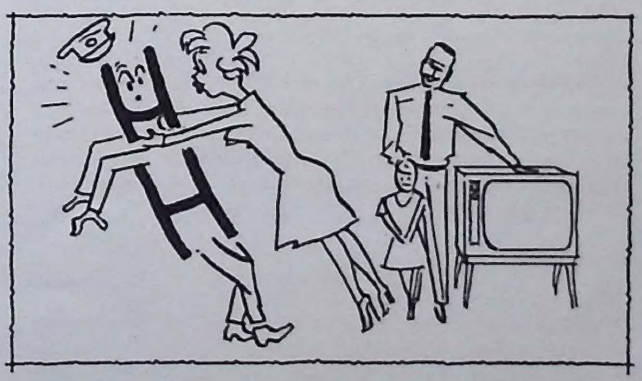
■ Oh NO! What'll I do, Charlie? Save me! If the children miss the cartoons, and Daddy misses the playoff game, you might as well take ME to the hospital right now.



■ Never fear, fair lady! Cathode Charlie, ever ready, will rescue you! Just let me ring my assistant Helpful Harry, and he'll bring your life-saver before you can cook the TV dinners.



■ There you are, Mrs. Abernathy. That's YOUR TV set, until we repair your ailing machine. It's yours for 50% off regular rental rates—compliments of Cathode Charlie.



■ Oh, you wonderful man! I certainly know who *I'll* call any time we run into TV trouble. And just you wait until I tell all the girls at the club that Cathode Charlie knows ALL the answers.

And the moral of this little tale, my friends, is that an alert TV repairman who is also a businessman can leave behind him a trail of satisfied customers, who are going to remember his name, and give him free advertising. So don't forget: even while you're being helpful you can also make a profit.

what's NEW

Saturation Levels for Electric Appliances

At the end of 1960 the Ontario Hydro Electric Power Commission conducted a survey of electric appliances ownership in Ontario. Here are the most popular appliances.

96.5% of all homes have a refrigerator
95.4% of all homes have a radio
94.8% of all homes have a hand iron
93.0% of all homes have a toaster
90.0% of all homes have a washing machine
89.5% of all homes have a television
87.0% of all homes have a vacuum cleaner

Home Furnishings Daily—April 17

First Discounter in Bankruptcy

MGM Discount Store in Montreal is the first Canadian discount store placed in bankruptcy.

The store owes $233,000 and has offered full payment of all debts. However, the creditors at a meeting expressed the opinion that the company would not be able to pay according to the terms of the offer.

Home Goods Retailing—April 11

First Live Trans-Atlantic Telecast Next Month

The first live telecast across the Atlantic by means of a satellite may come next month. The A.T. & T's Telstar satellite is scheduled to be fired into orbit by N.A.S.A. from Cape Canaveral May 22 and first telecasting is expected for late May or early June. The first telecast will be a "10-minute spectacular."

Television Digest—April 16

New Television Size?

There will be a new television size this year in the United States, the 16-inch square cornered tube. The smaller size offers little price advantage over the present 19-inch tubes and will very likely be promoted as a "light-weight portable."

Television Digest—April 16

Jobbers in U.S.A. Want $9.95 Record Player

Record rack jobbers in the United States asked manufacturers to provide a 45-r.p.m. record player which could retail for $9.95 in order to stimulate teenager interest in record buying.

Home Furnishings Daily—April 12

Predictions for Electronics

The electronics technology laboratory of the Air Force Systems Command of the United States predicts for electronics:

A tenfold increase in reliability of the devices; a significant decrease in costs, as much as tenfold in some cases

A hundredfold decrease in size and bulk material requirements

A tenfold decrease in power consumption

Business Week—April 14

WHY DON'T YOU?

. . . Get more mileage out for your advertising in the yellow pages of the telephone directory? For example, make it plain in your ad what area you can give service in? Remember: when a homeowner finds his set on the fritz, he wants to be able to call a serviceman who can get there fast. So use the yellow pages to spread your name as a *local* serviceman for your area. Don't stop there: Spend a few extra bucks for reprints of your yellow-page ad, on paper with an adhesive backing. Then spread them over your own district by postal-walk delivery, so that every TV owner can slap your name and number on the back of his set, for handy reference in times of emergency.

. . . Make yourself a personality in your service club, by taking over the program for a meeting with a film show? The Rogers film library can provide the movies for you—there's a terrific range of really topnotch films—and you can give your club members a new look at you as an authority in one of the paramount industries of the modern world. No need to stop there: bring along copies of your yellow-page reprint to hand out after the film show—establish the Image, as they say in Madison Ave.

. . . Broaden your own knowledge of your field by some carefully-chosen reading? The Philips Technical Library lists the latest publications in the electronics field in English, French, German, Dutch, Spanish, Italian, and Swedish. The catalogue gives you a brief rundown on the subject matter of every new, worthwhile book, and can supply you with advice about how to obtain copies.

. . . Offer to make every *tenth* service call a free one? Every person who gets that tenth free call is a steady customer—and don't forget, you're in a highly competive field, where the steady customer is the best kind of insurance.

. . . Write to us at *The Booster*, and let us know about the service hints or promotion methods *you* have found effective. If the editors find them suitable for publication, you'll receive $5 free! Or send to us the beefs you'd like to have aired in front of the manufacturers . . . naturally, we don't pay for these!

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